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Proceeding	91179897
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# FOCUS

From Wikipedia, the free encyclopedia

**FOCUS** is a computer programming language. It is a database query building language, regarded as a fourth-generation programming language(4GL). produced by Information Builders Inc. Originally developed for data handling and analysis on the IBM mainframe, as newer systems were developed and smaller computers became more powerful, the available platforms for FOCUS were extended all the way down to personal computers and in 1997, to the World Wide Web in the WebFOCUS product.

## Relation to other 4GLs

RAMIS, the first 4GL, was the direct ancestor of FOCUS, having been principally developed by Gerald Cohen and Peter Mittleman while working at Mathematica in 1970. The product was sold by Mathematica to a number of in-house clients (including Nabisco and AT&T), and was also offered by the National CSS timesharing company for use on their VP/CSS operating system (a derivation of IBM's CP/CMS which is now called VM/CMS). In 1974, Cohen decided to leave Mathematica and form Information Builders, after which he recreated the product he had built at Mathematica in the form of FOCUS which was released in 1975. The syntax of FOCUS in its simplest elements is almost a direct clone of the syntax of RAMIS bearing a resemblance similar to the differences between various early dialects of SQL). At the same time, NCSS decided to work on its own product, later called NOMAD. All three products flourished during the 1970s and early 1980s, but Mathematica's time ran out in the mid-80s, and NCSS also failed, a victim of the personal computing revolution which obviated commercial timesharing (although it has since been revived in the form of ASPs and shared web servers). RAMIS was sold through to several companies, ultimately landing with Computer Associates. NOMAD suffered a similar fate. FOCUS, under Cohen's direction, continued to flourish by expanding their product. FOCUS owes its success to its genesis in RAMIS and the early use at National CSS.

Loosely competitive with SAS, for instance, FOCUS never quite reached the same degree of mainstream adoption, perhaps because it had only basic analytical and statistical functions, lacking the wide array of specialized analytic tools which made SAS the standard in fields such as pharmaceutical clinical trials. Instead, FOCUS concentrated on extreme flexibility in data import and export as well as ad hoc end-user reporting. Direct competitors to FOCUS included NOMAD and RAMIS which have since fallen by the wayside while FOCUS has endured.

## Description

Released in 1975, FOCUS resembles other data access and analysis languages such as SQL and SAS, but also includes report and chart display and presentation features. FOCUS assumes a

default file structure, and automates the process of identifying files to the operating system, opening the input file, reading the next record, opening the output file, writing the next record, and closing the files. This basic operation allows the user/programmer to concentrate on the details of working with the data within each record, in effect working almost entirely within an implicit program loop that runs for each record. Other procedures operate on the dataset as a whole, for instance printing or statistical analysis, and merely require the user/programmer to identify the dataset.

Compared to general-purpose programming languages, this structure allows the user/programmer to be less familiar with the technical details of the data and how it is stored, and relatively more familiar with the information contained in the data. This blurs the line between user and programmer, appealing to individuals whose work roles are in business or research rather than information technology. This in turn has the double edged result of allowing rapid answers to business or research questions, even ones requiring several iterations to get from the initial results to a final answer; but also can contribute to the construction of a large body of poorly written and/or difficult to maintain source code.

FOCUS features the ability for the user to construct a data description file (called a "master file description") referring to the actual data file, or even several different data description files addressing the same data file in different ways, rather than the usual practice of having the file structure hard-coded into the program. In this way, files of any structure from any source can be accessed or produced in many different ways, eliminating much of the data manipulation (for example concatenation, or parsing) usually required with other earlier programming languages to change variable formats or data structures. For instance, the same actual data file can be accessed (read or write) as each record being an 80 byte text string, or as 40 2 character numerical fields, or as 10 8-byte floating point numbers, etc., by the user simply and quickly writing the appropriate master file description as needed.

In 1997, a web-based version of FOCUS was introduced called "WebFOCUS" which built on the data access and reporting foundation of FOCUS, expanding these to a visually oriented thin-client paradigm accessible from any web browser.

In 2005, Information Builders consultants, working with JPMorgan Chase, developed a 4GL translator that could automatically replace legacy NOMAD programs with the WebFOCUS product. *ComputerWorld* honored this BI consolidation automation with a Laureate Award in 2006. Similar translation capabilities are being added to the BI translator for converting the other legacy 4GLs, such as RAMIS and FOCUS.

## External links

- <http://www.informationbuilders.com/products/focus/overview.html>

Retrieved from "http://en.wikipedia.org/wiki/FOCUS"

Categories: 4GL

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## Information Builders, Inc.



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Information Builders, Inc. (IBI) wants to help you grow your business intelligently. The company's flagship WebFOCUS software makes it easier to conduct data integration and business intelligence analysis over the Internet, intranets, and extranets. Customers use IBI's products to collect, analyze, and distribute a variety of enterprise data. The company's iWay Software subsidiary offers middleware technology that helps businesses integrate legacy systems with newer applications. Information Builders also provides consulting, training, and support services. President and CEO Gerald Cohen helped found IBI in 1975, bootstrapping the company's operations with advance payments from its first two customers.

Key numbers for fiscal year ending December, 2007:

**Sales:** \$313.0M

**Officers:**

President and CEO: Gerald D. Cohen

SVP and CFO: Harry Lerner

SVP Systems and Communications: Timothy Benthall

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[Company History:](#) Information Builders, Inc.

**Incorporated:** 1975

**SIC:** [6794 Patent Owners & Lessors](#); [7372 Prepackaged Software](#); [7373 Computer Integrated Systems Design](#)

Information Builders, Inc. (IBI), a computer software firm, is one of the largest privately held companies in New York City. It ranked among the world's top 20 independent software vendors in the mid 1990s and was recognized as an industry leader in fourth-generation-language (4GL) technology, specializing in information access and analysis. A 4GL is designed to help users create complex data queries and build client/server applications around databases. IBI's Focus software was the most widely used 4GL product in the world by 1990. Focus and the company's other software all shared a common [middleware](#) architecture intended to eliminate the complexities and support headaches that could result from adding new vendors each time a new application systems was required. The company also offered technical support, training, and a complete range of professional consulting services from its 85 worldwide offices in 1997.

Information Builders was founded in 1975 by Gerald C. Cohen, Peter Mittelman, and Martin Slagowitz. Cohen, a native New Yorker who in 1997 still lived on Manhattan's Upper West Side where he grew up, remained president and chief executive officer of the firm through the late 1990s. A graduate of St. John's College in New Mexico, Cohen began developing Ramis software--often cited as the world's first 4GL--with an engineering team at [Mathematica](#), Inc., in 1965. "We pioneered an industry," Cohen later told Mike Bucken of *Software Magazine* in a 1990 interview. "Ramis was the first non-procedural language and the first to be sold outside [the] IBM [sales force]."

*Company  
Perspectives:*

*Information Builders develops and markets software and professional services for the creation of high-performance business information systems at large, data-intensive organizations. These products and services form an integrated yet open technology framework for*

Once Ramis had been developed, Cohen took charge of selling the product. This experience gave him new ideas on selling software directly to large corporations and led him to leave Mathematica in order to found Information Builders with Peter Mittelman (also a Ramis developer) and Martin Slagowitz. "Mathematica was really a consulting firm," Cohen explained to Bucken. "Selling software by a strictly consulting company wasn't the way to go. ...That was the reason I left."

Information Builders quickly created Focus, a software product that allows computer users who want to manipulate a database--names and addresses on a mailing list, for example--with little training and using standard English. Originally intended as a mainframe-oriented product that could be accessed remotely through time-sharing systems, Focus was itself developed on leased IBM mainframe time, bartered from a software service company that also provided seed money and terminals. Additional funding in IBI's first year came from RCA, which also agreed to purchase a Focus license while it was still being developed, and Tymshare, a Silicon Valley-based service bureau that contracted to distribute the product for use over its network. "When we started out, our clients did credit checks on us," Mittelman recalled. "Now we do credit checks on our clients."

*Enterprise Data Access, Enterprise Decision Support Systems, Data Warehousing, On-Line Transaction Processing Applications, Internet Integration, and Packaged Application Integration and Productivity.*

Time sharing fell out of widespread use by 1980, but leasing the original Focus, designed to run on IBM 4300 machines, to time-sharing firms was vital to Information Builders during its early years. By contrast, turning to direct sales of the software, Cohen recalled, was "a very big decision" that required a significant investment. "Time sharing had given us an [unparalleled](#) opportunity," he told Bucken, "but we could see that people were going in-house [to develop applications]. So we began to build an infrastructure to sell the product." This infrastructure was completely funded internally from the company's steady stream of license fees.

Information Builders secured its first international contract, from Datema Co. of Sweden, in 1977. The company's first subsidiary opened in London in 1980, followed by InfoBuild, a Canadian subsidiary, in 1982. FUSE, the first Focus user group (training center), was formed in 1979, with the first branch established in Palo Alto, California. Information Builders had 25 employees and about \$3 million in annual revenues by 1980.

The firm made an early marketing decision to sell Focus not as a database management system (DBMS) but as an "information builder." "We knew that if we went in and said we were a DBMS vendor, they would say they already had one," Cohen explained. David Kemler, hired as the company's first [salesperson](#) in 1977 and later becoming its sales and marketing vice-president, said that, from the start, Focus was marketed as "a 4GL front end. We were precluded from going into large shops and saying we had a database because they already had IMS [from IBM]." Nevertheless, most users purchased the Focus DBMS as an option with the 4GL, and by 1990 it was being used in 99 percent of IBI's customer sites, according to Kemler.

The revenue stream from time-sharing licensees also enabled Information Builders to fund development of a version of Focus for the personal computer market. The company first attempted to enter the PC field in 1980 by porting Focus to the Apple II model but decided the computer was too slow. In 1982 IBI began work on a version for the IBM PC. Just as it was determining that this model also lacked adequate performance, IBM came out with its improved [XT](#) version. Focus was ready to serve this computer when the first shipments of the machine were made in 1983, thereby enabling Information Builders to become an early power in the [microcomputer](#) business.

In 1985 the PC version was expanded with a single-user release, the addition of a network version, and a host-language interface to enable programs written in traditional programming languages to create, build, and maintain PC/Focus databases. Upgrade kits were free for customers under IBI's extended maintenance and service contract, \$550 for other current users, and \$1,595 for new users.

Focus versions for the Digital Equipment Corp.'s [VAX](#) line and Wang's VS-based systems were released in 1986. They were followed by versions for the Macintosh PC, variations of the Unix operating system, the NCR Workstation 300, and the Convergent Technologies Ngen computers. Focus versions for the proprietary [minicomputer](#) offerings of Hewlett-Packard Co., Tandem Computers Inc., and IBM's AS/400 were released in 1988. Each version was in effect a different product requiring a separate development and marketing team.

By the end of 1987 Information Builders was among the three largest privately held software companies in the United States, with revenue expected to top \$110 million in that year. Focus, the market leader in fourth-generation language, was still the company's only product, with an estimated 29 percent of the market at U.S. IBM and plug-compatible manufacturers' sites. IBI had added capabilities for graphics, spreadsheets,

and report writing to core database-management systems such as IBM's IMS and DB2 and Digital's [Rdb](#).

In 1987 Information Builders made its first acquisition, Level Five Research, Inc. Cohen believed that this Florida company would help IBI offer more decision-support products to its Focus lineup, such as problem analysis and intelligent documentation. Level 5 was an expert-system shell running on MS-DOS-based personal computers and Digital minicomputers running VAX/VMS. By 1990 work had been completed on a Level 5 module to include with Focus, and a team was working to develop versions for all Focus platforms. IBI was also marketing PRL3, an expert-system development tool for the VAX, and Insight 2+ for IBM PC's and compatibles.

Cohen told *Computerworld* in 1987 that Information Builders was "not selling product but selling service." The firm was offering service that year at 20 offices around the United States and had 125 employees to help customers get their applications running. By 1990 IBI had 53 user groups in the United States. It also had opened a development center in Paris. A German subsidiary opened later in the year. IBI was ranked in 1991 as the 15th-largest independent software company in the United States, with 1990 revenues of \$191 million, up from \$130 million in 1988 and \$155 million in 1989. The company claimed 600,000 Focus users in early 1990. It had sold 100,000 PC Focus licenses and installed 5,000 copies of [mainframe](#) and minicomputer Focus versions.

Information Builders introduced a new product line, [EDA](#) (Enterprise Data Access) in 1991. The purpose of this product was to gain entry into the fast growing client-server market, where networks of small computers communicated with each other or mainframes. The problem to be solved was access to data in the huge range of [incompatible](#) machines, operating systems, and databases in corporate networks. EDA/SQL used an ANSI (American National Standards Institution) version of [SQL](#) as a standard interchange format. Running on a PC or [workstation](#), the client bit of EDA/SQL "talked" to the server bit, running on a file-server, minicomputer, or mainframe. The server then talked to a range of databases, which might not use SQL. In Europe, however, not many databases, and even fewer applications programs, were using ANSI SQL, so that other products were also needed to service this market.

By the end of 1997 the EDA family of middleware products extended the reach of virtually any application or tool that supported either SQL or [RPC](#), for transparent access to more than 65 of the most widely used proprietary databases, files, and application programs in 35 interconnected operating environments.

By 1993 Focus was running on about one million computers, with 35 percent of sales derived from overseas, mainly Japan. PC-based versions of Focus were selling for \$795, while those designed for mainframes cost \$150,000. More than half of the Focus software was still running on mainframes, but this business was dwindling as a share of the total market. Focus still accounted for 80 percent of IBI's revenues whereas EDA/SQL, including several upgrades and new versions, brought in only about 10 percent. IBI was also doing design work for select clients including the U.S. Air Force.

Information Builders joined an alliance in 1994 led by Amdahl Corp., best known for mainframe computers compatible with IBM. Amdahl announced it would enter the market for massively parallel database machines to be built by nCube Corp. using software from IBI and Oracle Corp. Amdahl claimed that the alliance would develop electronic repositories that could store and retrieve vast amounts of data.

Also in 1994, IBI came out with its first version of Focus for Windows software. Interviewed by *InformationWeek*, Cohen acknowledged that the Focus business was slowing down but predicted a rebirth when the company came out with a graphical-user interface version. He also observed that the VAX market was declining and that the company had experienced a "disastrous time in Europe," but he added that its European subsidiaries had been rebuilt and that business overseas had rebounded. Acknowledging that IBI's EDA business had been slow to meet expectations, Cohen defended the product line, saying that it was "growing fast."

Information Builders' revenue came to \$227 million in 1993 and \$243 million in 1994, of which packaged software sales were \$200 million and \$204 million, respectively. During 1994 the company introduced Focus Reporter for Windows 1.5, as well as Focus Personal Service and EDA/Copy Manager for Lotus Notes for the IBM AS/400. The company signed agreements with Oracle and [Informix](#) to build new middleware gateways for their flagship environments and announced an expanded relationship with Microsoft to deliver an integrated family of EDA/SQL solutions for the company's [Windows NT](#) operating system. By 1995 the company had 28 sales offices in the United States, with 500 people in the field. It also had three offices in Canada and 13 international subsidiaries.



Information Builders introduced WebFocus in 1996, a tool designed to let database administrators display reports on the World Wide Web. Users could display charts and graphs using any standard Web browser. WebFocus worked with most common databases and was fully compatible with the IBI client/server reporting system. Another IBI introduction that year was Cactus, a software product for developing and partitioning three-tier applications spanning [heterogeneous](#) operating systems, mainframes, [midrange](#) servers, personal computers, and workstations. To work correctly, Cactus required programmer training in a proprietary language and EDA/SQL server products.

In 1997 Information Builders prepared to move its headquarters from 1250 Broadway to nearby Two Penn Plaza, leasing three floors for a total of 179,000 square feet of office space. It also added 30,000 square feet of space at nearby 330 West 34th Street for back-office operations. The 15-year leases were valued at more than \$100 million. In order to keep the firm from moving its 800-plus employees to New Jersey, New York City contributed nearly \$5 million in sales tax incentives and cheap energy. IBI retained about 27,000 square feet--two floors--at 1250 Broadway. The company had 10 foreign subsidiaries and representatives in 25 foreign countries, plus Hong Kong and the Gulf states. IBI regularly published technical journals, a quarterly newsletter, and a features magazine.

#### Principal Subsidiaries

Information Builders Belgium S.A.; Information Builders (Canada) Inc.; Information Builders (Deutschland) GmbH; Information Builders France S.A.; Information Builders Iberica S.A. (Portugal); Information Builders Iberica S.A. (Spain); Information Builders (Netherlands) B.V.; Information Builders Pty. Ltd. (Australia); Information Builders Switzerland A.G.; Information Builders (UK) Ltd.

#### Principal Divisions

Enterprise Data Access; Integrated Solutions; Micro Products; Open Systems; Specialized Systems.

#### Further Reading

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